

In the Claims

1. (Previously Presented) An x-ray detector comprising:
an x-ray detection layer configured to output electrical signals in response to reception of x-rays;
a circuit board having a plurality of electronic components disposed thereon and configured to at least control readout of the electrical signals from the x-ray detection layer;
a cover assembly enclosing the x-ray detection layer and the circuit board, the cover assembly formed of a first material and incorporating viscoelastic impact-absorbing material different from the first material; and
one or more bumpers formed of the viscoelastic impact-absorbing material and substantially confined to respective identified prospective impact corners of an external perimeter of the cover assembly.
2. (Original) The x-ray detector of claim 1 wherein the cover assembly includes a handle to support portability thereof.
3. (Previously Presented) The x-ray detector of claim 1 wherein the one or more bumpers are secured to the external perimeter of the cover assembly.
4. (Previously Presented) The x-ray detector of claim 3, wherein the one or more bumpers formed of the viscoelastic impact-absorbing material comprise four or more bumpers formed of the viscoelastic impact-absorbing material;
wherein the cover assembly includes four corners, and having a respective bumper of the four or more bumpers overlapping each corner of the cover assembly.
- 5-7. (Canceled)
8. (Previously Presented) The x-ray detector of claim 1 wherein the viscoelastic material includes foam.
9. (Original) The x-ray detector of claim 1 wherein the x-ray detection layer includes a scintillator layer and a photosensitive layer configured to detect illumination of the scintillator layer.

10. (Original) The x-ray detector of claim 9 further comprising a glass substrate having transistors etched thereon and configured to control operation of the photosensitive layer between a data acquisition state and a readout state.

11. (Original) The x-ray detector of claim 1 configured as a flat-panel, solid state x-ray detector.

12. (Currently Amended) A solid state x-ray detector comprising:
a scintillator layer configured to output light in response to x-ray exposure;
an array of photosensitive detector elements supported by a glass substrate and configured to store electrical charge as a function of light output by the scintillator layer during data acquisition and output electrical signals indicative of the stored electrical charge during readout;

a housing enclosing the scintillator layer, the array of photosensitive detector elements, and the glass substrate; and

viscoelastic material secured externally to the housing and ~~located in the one or more discrete cavities substantially~~ confined to respective identified prospective impact corners of a periphery of the housing.

13. (Canceled)

14. (Previously Presented) The solid state x-ray detector of claim 12 wherein the housing includes an insert of viscoelastic material positioned at each corner thereof in the one or more cavities.

15. (Previously Presented) The solid state x-ray detector of claim 12 further comprising a transverse layer of viscoelastic material sandwiched between the scintillator layer and an undersurface of a top panel of the housing and substantially coextensive with an expanse of a major dimension of the top panel of the housing.

16. (Original) The solid state x-ray detector of claim 12 wherein the viscoelastic material is formed of a material sufficient to prevent fracturing of at least one of the scintillator

layer, the array of photosensitive detector elements, and the glass substrate when dropped a distance of 20 cm.

17. (Original) The solid state x-ray detector of claim 12 further comprising a handle incorporated into the housing to support portability thereof.

18. (Original) The solid state x-ray detector of claim 12 wherein the viscoelastic material includes foam.

19. (Original) The solid state x-ray detector of claim 12 further comprising an insert of viscoelastic material at one or more corners of the housing.

20. (Currently Amended) A cover assembly to encase components of an x-ray detector, the cover assembly comprising:

a top support panel and a bottom support panel collectively defining an internal volume configured and sized to house components of an x-ray detector;

at least one substantially transverse cavity formed in at least one of the top support panel and the bottom support panel;

viscoelastic impact-absorbing material that comprises a first impact-absorbing material portion disposed in the at least one substantially transverse cavity, the viscoelastic impact-absorbing material different from that which the top support panel and the bottom support panel are formed;

at least one corner cavity substantially confined to a respective corner of the at least one of the top support panel and the bottom support panel; and

a second impact-absorbing material portion of the viscoelastic impact-absorbing material disposed in the at least one corner cavity;

wherein the first impact-absorbing material portion comprises a transverse layer of the cover assembly that is substantially coextensive with an expanse of a major dimension of a corresponding one of the top support panel or the bottom support panel that comprises a respective substantially transverse cavity of the at least one substantially transverse cavity.

21. (Previously Presented) The cover assembly of claim 20, wherein each corner of the at least one of the top support panel and the bottom support panel comprises a respective impact-absorbing material portion of the viscoelastic impact-absorbing material disposed therein.

22. (Canceled)

23. (Previously Presented) The cover assembly of claim 20 wherein the viscoelastic material includes foam.

24. (Original) The cover assembly of claim 20 further comprising a handle defined in the top support panel and the bottom support panel.

25. (Original) The cover assembly of claim 20 wherein the top support panel and the bottom support panel are comprised of carbon graphite.

26. (Original) The cover assembly of claim 20 configured to prevent fracturing of a glass substrate housed in the internal volume when subjected to a point-load of 370 pounds.

27. (Previously Presented) The x-ray detector of claim 1, wherein the cover assembly and one of the bumpers comprise a unitary structural construction that transitions from a complete composition of the first material at an intermediate location to a complete composition of the viscoelastic impact-absorbing material at the respective one of the identified discrete prospective impact zone of the external perimeter of the cover assembly, wherein the unitary structural construction maintains a substantially consistent profile in enclosure of the x-ray detection layer and the circuit board.

28. (Previously Presented) The x-ray detector of claim 1, wherein the cover assembly comprises a panel, wherein the viscoelastic impact-absorbing material comprises a transverse layer of the cover assembly that is substantially coextensive with an expanse of a major dimension of the panel.

29. (Previously Presented) The solid state x-ray detector of claim 12, wherein the scintillator layer, the array of photosensitive detector elements, and the glass substrate may be

constructed that an effective weight distribution increases a likelihood of impact on a floor or other surface at a corner of the housing when dropped;

wherein incorporation of the viscoelastic material at corners of the housing serves to absorb a sufficient percentage of shock and resulting vibrations of a drop incident such that any shock or vibration experienced by components of the scintillator layer, the array of photosensitive detector elements, and/or the glass substrate is of a magnitude insufficient to cause damage thereto.

30. (Canceled)

31. (Currently Amended) The cover assembly of claim ~~30~~20, wherein the transverse layer of the cover assembly comprises a first transverse layer of the cover assembly, wherein the first transverse layer of the cover assembly is substantially coextensive with an expanse of a major dimension of the top support panel that comprises the respective substantially transverse cavity of the at least one substantially transverse cavity;

wherein the viscoelastic impact-absorbing material comprises a second transverse layer of the cover assembly that is substantially coextensive with an expanse of a major dimension of the bottom support panel that comprises a respective substantially transverse cavity of the at least one substantially transverse cavity.

32. (New) A solid state x-ray detector comprising:

a scintillator layer configured to output light in response to x-ray exposure;

an array of photosensitive detector elements supported by a glass substrate and configured to store electrical charge as a function of light output by the scintillator layer during data acquisition and output electrical signals indicative of the stored electrical charge during readout;

a housing enclosing the scintillator layer, the array of photosensitive detector elements, and the glass substrate;

viscoelastic material secured to the housing and located in the one or more discrete cavities substantially confined to respective identified prospective impact corners of a periphery of the housing; and

a transverse layer of viscoelastic material sandwiched between the scintillator layer and an undersurface of a top panel of the housing and substantially coextensive with an expanse of a major dimension of the top panel of the housing.